

November 2, 1972

Dr. S. Nishida  
Department of Bacteriology  
Kanazawa University  
Kanazawa, Japan

Dear Dr. Nishida,

In my library investigations of work on variation of *Clostridium* I have encountered your name many times. I would be grateful to you for reprints of your papers dealing with the differentiation of *Clostridium* strains, the isolation of *C. tetani*, and the occurrence of atoxic and other variants.

My interest in this question in fact centers on an observation by Sanfelice to which I would like to call your attention (see enclosure).

In fact, since you now have accumulated a unique experience with tetanus strains and with non-toxic variants, may I not suggest that you would be in a very favorable position to attempt to confirm Sanfelice's finding and if so, to bring our understanding of variation in toxin formation within the framework of contemporary research on the influence of bacteria phage on toxigenicity. May I refer also to an article by Inoue and Iida at Sapporo ("Phage-conversion of toxigenicity in *Clostridium botulinum* types C and D", Japanese Journal of Medical Science and Biology, Vol. 24, No.1, pages 53-56, February 1971) which confirms a similar phenomenon for *Clostridium botulinum*.

Apart from the obvious general interest of such an experiment it might also help to clarify the role of heating in influencing the toxigenicity of these bacteria.

My own interest in this specific question is mainly historical as you may note from the enclosed letter to Science. When I was at the University of Wisconsin, some 15 years ago, I tried to interest Professor Elizabeth McCoy into looking into the Sanfelice report but without success. I would be interested to know whether you or your colleagues had been aware of these very ancient claims as a tradition of this part of bacteriology prior to my having revived a discussion of them.

Sincerely yours,

Joshua Lederberg  
Professor of Genetics

JL/rr  
Enclosure